BOTANIC GARDEN ELM
(Botanic Garden *Zelkova carpinifolia*)
NPS Witness Tree Protection Program
National Mall
Union Square
Southwest grass panel
Washington
District of Columbia

HALS DC-9
DC-9

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN LANDSCAPES SURVEY
National Park Service
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1849 C Street NW
Washington, DC 20240-0001

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(Botanic Garden *Zelkova carpinifolia*)

HALS No. DC-9

Location: National Mall, Union Square, southwest grass panel, Washington, District of Columbia

Owner/Manager: U.S. Government, National Park Service

Present Use: Ornamental and shade tree

Significance: The Botanic Garden Elm (*Zelkova carpinofolia*) is significant because of its rarity, longevity, and association with the original United States Botanic Garden. It is also significant due to its preservation by Frederick Law Olmsted, Jr. during his redesign of the modern National Mall.

Author & Discipline: Jonathan Pliska, Landscape Architectural Historian, 2006

Project Information: The Witness Tree Protection Program was a pilot project undertaken by the Historic American Landscapes Survey and the National Capital Region of the National Park Service. The principals involved were Richard O'Connor, Chief, Heritage Documentation Programs; Paul D. Dolinsky, Chief, Historic American Landscapes Survey; Darwina Neal, Chief, Cultural Resources, National Capital Region; Jonathan Pliska, Historian, Historic American Landscapes Survey; Jet Lowe and James Rosenthal, Photographers, Heritage Documentation Programs.

PART I. HISTORICAL INFORMATION

Union Square is that part of the National Mall bounded by Pennsylvania Avenue, NW on the north, 1st Street, NW and SW on the east, Maryland Avenue, SW on the south, and 3rd Street, NW and SW on the west. The trapezoidal parcel lies just west of the U.S. Capitol and was included in Pierre Charles L'Enfant's 1791 design of the city of Washington. L'Enfant's plan focused on combining a rectilinear street grid with open boulevards that visually connected prominent sites and structures to be erected within the new city. Two views were of paramount importance. The first centered on Pennsylvania Avenue between the Capitol and the White House, while the second extended the axes of the buildings to the west and south. This second vista, L'Enfant's "Grand Avenue," was designed as one large, open greensward. In the twentieth century, it would emerge as the

preeminent landscape within the city, the site of the National Mall. However, little was done to realize L'Enfant's vision during the nineteenth century, as buildings and temporary structures were erected on and around the Mall, effectively destroying the original panoramic design.[1]

The first of these construction projects took place in 1820, when Congress authorized the Columbian Institute for the Promotion of Arts and Sciences to found the first United States Botanic Garden on the site currently occupied by Union Square. That same year the first greenhouses and gardens were established, and five acres of land were fenced in. The Columbian Institute dissolved in 1837, but five years later the Botanic Garden was reestablished as the home of the botanical collections gathered by the Wilkes Expedition during the 1838-42 exploration of the southern Pacific Ocean. In late 1850, the collections were moved to a specially created octagonal greenhouse, which was enlarged and expanded ca. 1870 by Architect of the Capitol Edward Clark.[2] Throughout the nineteenth century the Botanic Garden continued to grow and develop, and became well-known for its immense collection of trees and plants. Although many of the trees planted at the garden were common natives of the United States, some were rare species and others gained significance as memorial trees. Rare trees included two species of *Zelkova* (*Z. serrata and Z. carpinifolia*), ginkgo (*Ginkgo biloba*), and Japanese pagoda tree (*Sophora Japonica*).[3] Most of the memorial trees honored political figures, including congressmen, senators, and presidents. One of the most noteworthy of these specimens was the Crittenden Peace Oak, a bur oak (*Quercus macrocarpa*) planted ca. 1862 by Kentucky Senator John J. Crittenden, author of the Crittenden Compromise, an unsuccessful bill drafted in 1860 designed to prevent the outbreak of the Civil War by guaranteeing the permanent continuation of slavery in the extant southern states.[4] Additional memorial trees included a Chinese Oak (*Quercus serrata*) reportedly from the grave of Confucius, a lea oak (*Quercus leana*) planted by future president Rutherford B. Hayes during his term in Congress, and a silk tree (*Albizzia julibrissin*) planted in memory of President James A. Garfield.[5] Unfortunately, many of the exotic specimens have not survived to the present day, and a comparison of the historic planting plans and tree lists with extant specimens suggests that no memorial trees remain.[6]

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[1] Kay Fanning, *National Mall and Memorial Parks, Union Square: National Park Service, Cultural Landscape Inventory* (Washington, D.C.: National Park Service, National Capital Region, Cultural Landscapes Program, 2006), 14.
[2] James Goode, *Capital Losses* (Washington, D.C.: Smithsonian Institution Press, 2003), 357; U.S. Botanic Garden, "A Brief History of the U.S. Botanic Garden," in *United States Botanic Garden*, http://www.usbg.gov/history/history.cfm (accessed 11 September 2006).
[3] Frederick Law Olmsted, Jr., "Union Square Planting Plan," map drawn by Eastern Division, Branch of Plans and Design, 27 February 1935, National Park Service, Technical Information Center, folder 802, item 89046.
[4] I.N. Hoffman, "Historical Trees in the Botanic Garden," 1932, quoted in Fanning, 97-98; Alexander M. Padro, "Wars and Remembrance: The World War II Memorial Dispute is a Case of Déjà Vu All Over Again," *Washington Post*, 13 August 2000.
[5] Hoffman, quoted in Fanning, 97-98.
[6] Fanning, 65.

The actions leading to the loss of these trees began in 1901, with the plan for the development of Washington, D.C., by the Senate Park Improvement Commission of the District of Columbia. Better known as the McMillan Commission, named for Chairman Sen. James McMillan of Michigan, this illustrious group consisted of Daniel H. Burnham, architect and director of the 1893 World's Columbian Exposition, landscape architect Frederick Law Olmsted, Jr., architect Charles F. McKim, and sculptor Augustus Saint-Gaudens.[7] The Commission envisioned a return to L'Enfant's Grand Avenue, calling for an open, grassy vista leading to the Capitol, flanked by four rows of American elm trees separated lengthwise and crosswise by 50' spans.[8] The McMillan Commission's recommendations were in large part a response to the construction projects completed in and around the National Mall during the previous century. Its members scored a major victory with the 1907 demolition of the Baltimore and Potomac Railroad Station, built in 1873 at the corner of 6th and B streets, the present site of the National Gallery of Art.[9] Conversely, the Mall accommodated a bevy of temporary military structures during World War I, and as a result little was accomplished here until the 1930s.[10] However, once work began it progressed rapidly, as Depression-era work projects supplied the necessary laborers to execute the landscape designs planned more than thirty years earlier.[11]

Because it occupied the prominent position just west of the Capitol grounds, the Botanic Garden proved a severe obstacle to this "tapis-vert" (green carpet) design for the Mall. By the 1930s, the facility had fallen into a severe state of disrepair due to a lack of maintenance and funding shortfalls. Moreover, the McMillan Commission had selected its grounds as the site of Union Square, a monument to the Federal victory in the Civil War. The enormous equestrian statue of Gen. Ulysses S. Grant,[12] the centerpiece of the Union Square design, was installed in 1922, and a statue of Maj. Gen. George Gordon Meade, the victor of the 1863 Battle of Gettysburg, followed in 1927. However, as National Park Service historian George J. Olszewski states: "The condition of the square was such that the two memorials were practically hidden from view, and the deteriorated structures which shared the overgrown and unkempt area detracted from the appearance of the memorials."[13] This juxtaposition lasted only a short while, as the Botanic Garden was razed in 1930 and relocated three years later to its present site south of Maryland Avenue between 1st and 3rd streets and Independence Avenue.[14] Olszewski tells that work progressed rapidly on the newly created Union Square, as "the unsightly structures

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[7] After McMillan's death in 1902, his assistant, and the Commission's Secretary, Charles Moore succeeded him as Chairman.
[8] Charles Moore, *Daniel H. Burnham*, 2 vols. (Boston: Houghton Mifflin Co., 1921), 223.
[9] George J. Olszewski, "History of the Mall: Washington, D.C.," (Washington, D.C.: U.S. Department of the Interior, National Park Service, Eastern Service Center, Office of History and Historic Architecture: 1970), 29.
[10] Elizabeth J. Barthold, "The National Mall and Monument Grounds," (Washington, D.C.: Historic American Buildings Survey (HABS) No. DC-678, National Park Service, 1990-93), 19.
[11] Ibid., 22.
[12] Eighteenth President of the United States, 1869-77.
[13] Olszewski, 91.
[14] Barthold, 21.

were demolished and removed; the area was given new and proper landscaping; and the memorials were restored to the importance they merited."[15]

As a member of the McMillan Commission, Congress selected Frederick Law Olmsted, Jr. to implement its redesign of the National Mall, and he therefore determined what constituted this "new and proper landscaping" of Union Square. Olszewski notes that the "Union Square of the McMillan Plan had no trees at all, creating a break between the trees of the Capital Grounds and those of the Mall."[16]There was, however, strong opposition to this clear-cutting. As early as 1908, a political cartoon appeared in the *Washington Evening Star* labeling Commission members Burnham and McKim as "tree butchers and nature butchers" who were "costumed on architectural straight lines," and "on their way with axes to make a clean sweep . . . of all the grand old trees on the Mall."[17] Olmsted undoubtedly remained well-aware of this sentiment twenty years later, and it likely influenced his decision to incorporate trees into his design for Union Square. Specifically, he directed that, "The existing fine large trees in the old Botanic Garden north and south of the requisite central open space should be preserved, and should be reinforced *[sic]*, where the mass of foliage is weak, by additional trees, obtainable in part by moving to those positions good trees which must be removed from the central open space."[18] Olmsted hoped to preserve these specimen trees while at the same time adhering to the Mall's overall processional theme, and showcasing the Grant and Meade Memorials within Union Square's central open space.

From a conservation standpoint, this plan was only marginally successful, with approximately forty-one trees transplanted and 250 cut down within Union Square.[19] Many memorial and exotic trees were among those lost. Moreover, the 1971 installation of the Capitol Reflecting Pool by the architectural firm Skidmore, Owings & Merrill destroyed the majority of the remaining trees, forced the removal of the Meade Memorial, and irrevocably altered Olmsted's design. Owing to Olmsted's removals, the installation of the reflecting pool, and natural mortality, it appears that no memorial trees have survived and very few exotics remain. Five specimens of the genus *Zelkova* comprise the majority of the Botanic Garden's exotic plantings still present within Union Square. Four, all Japanese zelkovas (*Z. serrata*), were transplanted by Olmsted, including one particularly large tree with a root ball approximately 28' to 38' in diameter.[20] The fifth zelkova, the Botanic Garden Elm, was not moved, and remains in its original location. Unlike the other zelkovas this tree is an elm zelkova (*Z. carpinifolia*), an extremely rare species within the United States, especially during the years the Botanic Garden was located on the National Mall. It also dwarfs even the largest Japanese

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[15] Olszewski, 91.
[16] Fanning, 27-28.
[17] Berryman, "Group of Le Notre-McKim Tree Butchers and Nature-Butchers," cartoon, *Washington Evening Star*, 14 January 14, 1908, reproduced in Olszewski, "History of the Mall," fig. 10.
[18] Frederick Law Olmsted, Jr., statement of 19 April 1934, quoted in Fanning, 29.
[19] Fanning, 31.
[20] Olszewski, "History of the Mall," 93; C. Marshall Finnan to H. J. Spelman, 15 October 1935, Washington, D.C. memorandum, National Park Service, National Capital Parks.

zelkova, and it was likely this massive size and the tree's location to the extreme southwest of Union Square that led Olmsted to retain it in place. This remote location also saved the tree in 1971, as it was preserved in the southwest grass panel and not destroyed when the Capitol Reflecting Pool was installed at the center of the site. Given the severe alterations experienced by Union Square, any plantings dating back to the Botanic Garden are extremely rare; rarer still are the few trees that have remained in one location. The Botanic Garden Elm not only dates to this time period and has remained in place, but it is also an extremely rare species. As such it the most historically significant tree retained within Union Square.

PART II. BIOLOGICAL INFORMATION

Sometimes referred to as the Caucasian Elm, *Zelkova carpinifolia* is one of approximately five species of deciduous elm-like trees or shrubs classified under genus *Zelkova* within the family Ulmaceae.[21] *Zelkova carpinifolia* is native to the Caucasus, Kaçkar, and Alborz mountains in the extreme southeast of Europe and southwest Asia. In its home region, *carpinifolia* is grown as an ornamental tree. It is also grown as an ornamental in the United States, although the species is extremely rare. The tree's most distinguishing characteristic is its vase-shape, with a short broad trunk dividing low down into numerous nearly erect branches. This profile sometimes leads to *carpinifloia* being mistaken for an elm, to which all members of the genus *Zelkova* are closely related, and accounts for its common name.

Leaves are typically 2" long and elliptic to oblong in overall shape. Each leaf tapers to a point and the sides are serrated or "wavy-toothed." The leaves are pinnately veined with six to eight pairs of veins arranged laterally across a central vein, or midrib. The underside of the leaf is pubescent, meaning that it is covered with soft, short, fine hairs.[22] Leaves emerge in the spring and are dark green color in the summer before turning an orange-brown in the autumn and falling in the winter. The small, greenish flowers are largely unnoticeable, with female (pistillate) flowers borne at the top of tree and male (staminate) flowers produced on the lower branches.[23] The fruit is a small, asymmetrical drupe.[24] While the smooth, gray bark may become brittle and flake off with age, the wood is very hard, pliable, and heavy.[25]

Individual trees typically reach heights of 80' to 100', but as the Botanic Garden Elm has not yet been measured there is at present no means of determining how its size compares to that of other *carpinifolia* specimens growing in the United States. Moreover, *Zelkova*

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[21] Liberty Hyde Bailey and Ethyl Hyde Bailey, "*Zelkova*," in *Hortus Third: A Concise Dictionary of Plants Cultivated in the United States and Canada*, revised and expanded by the staff of the Liberty Hyde Bailey Hortorium, Cornell University (New York: Macmillan Publishing Co., Inc., 1976), 1182.
[22] Ibid., 1182, 1221.
[23] Botany.com, "Zelkova – Japanese Keaki Tree, Zelkova Tree," in *Botany.com: The Encyclopedia of Plants and Gardening* (Hillclimb Media, 2006), http://www.botany.com/zelkova.html (accessed 15 August 2006).
[24] Bailey and Bailey, 1182.
[25] Botany.com, "Zelkova."

carpinifolia is not listed in the American Forests National Register of Big Trees, as the organization only maintains records on species native to the United States. However, because of its large size and the extreme scarcity of the species within the United States, the Botanic Garden Elm is likely amongst the largest *carpinifolia* specimens growing in America today.

Zelkova carpinifolia requires full sun and moist, well-drained loamy soil that is deep enough to accommodate the species long roots. Well-established trees are tolerant of wind, shade, and drought.[26] The species is resistant to a wide variety of disease and pests, including the elm bark beetle responsible for spreading Dutch elm disease. Because of this resistance, and its reasonably similar appearance to elm trees, *Zelkova carpinifolia* has been marketed as a substitute for the millions of American elms killed by the disease. In general, however, the species remains an extremely rare ornamental tree, and has not been widely accepted.

[26] Ibid.